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December 17, 1992

BY HAND DELIVERY

Donna R. Searcy, Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20054

Re: Amendment of Section 2.106 of the Commission's Rules to Allocate 914-916 MHz for Wind Profiler Radar Systems on a Secondary Basis, RM-8092

Dear Ms. Searcy:

Attached for filing on behalf of Hughes Aircraft Company is an original and four copies of Reply Comments in the above-captioned proceeding.

If you have any questions, please call me.

Very truly yours,

Raymond B. Grochowski

Attachment

cc: Peter Shloss
Paul Fox

W\WP51\

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate 914-916 MHz for Wind Profiler Radar Systems on a Secondary Basis	)	RM-8092

REPLY COMMENTS OF HUGHES AIRCRAFT COMPANY

Hughes Aircraft Company, Ground Systems Group ("Hughes") hereby submits reply comments in the above-captioned proceeding.[1/] In its Petition for Rulemaking filed August 13, 1992 (the "Petition"), Radian Corporation ("Radian") asks the Commission to initiate a rulemaking to allocate 914-916 MHz for co-secondary use in Wind Profiler Radar Systems. The Petition does not adequately demonstrate a need to conduct wind profile operations in the 914-916 MHz band, nor does it contain adequate information to assess the likelihood of interference to other services in that frequency band, or how such interference can best be resolved. Therefore, the Petition should be denied as premature. Alternatively, the Commission should delay consideration of the Petition until Radian provides necessary technical information and all interested parties have received further opportunity for comment. Finally, Radian's proposal should be considered, if at all, only in conjunction with the separate Petition for Rulemaking filed

1. By order adopted November 18, 1992, the Commission extended the time for submission of reply comments until December 17, 1992, and therefore these comments are timely filed.

by North American Teletrac,[2] and related comments, which address changes to the Commission's rules governing automatic vehicle monitoring ("AVM") to be conducted in the 902-928 MHz band (the "Teletrac Petition").

DISCUSSION

I. THE HUGHES VRC SYSTEM

Hughes has developed and tested the Vehicle to Roadside Communications ("VRC") AVM system designed to operate in the 902-928 MHz band.[3] The system consists of a base station and car mounted "tags." Each tag contains a low power transponder that responds to interrogations received from the base station. The VRC system relies on a special protocol that permits interrogation and identification of every vehicle in a multi-lane environment using a single base station, even at high speeds. The effective communications range of the system is roughly 100 feet.

The VRC system will initially be used for automatic toll collection. However, system architecture has been designed to allow the VRC system to serve as the communication link for more sophisticated Intelligent Vehicle Highway System ("IVHS") applications that require a short range link between vehicles and neighboring infrastructure. Examples include vehicle fleet tracking, highway use monitoring, emergency warning message transmission, route delay calculation, and facilities availability information at highway exits, among others.

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2. Petition for Rulemaking of North American Teletrac and Location Technologies Inc. for Amendment of Section 90.239 to Adopt Permanent Regulations for Automatic Vehicle Monitoring Systems, RM No. 8013.

3. Testing and demonstrations of the VRC system have been conducted by Hughes under experimental license KA2XBX, File No. 2492-EX-PL-92.

The Hughes VRC system is part of a rapidly growing universe of AVM technology, some of which is already in service to the public.[4] The Commission is currently considering the Teletrac Petition, which contains proposed changes to interim rules governing AVM systems, 47 C.F.R. § 90.239, and proposed allocation of portions of the 902-928 MHz band. Further, as Radian has recognized, the Commission has sought permission of the Interdepartmental Radio Advisory Committee ("IRAC") to allow addition of 912-916 MHz to the frequencies currently allocated for AVM use. See Petition at 7 n. 22.

II. THE RADIAN PETITION DOES NOT JUSTIFY A RULEMAKING.

To be considered by the Commission, Petitions for Rulemaking must "set forth . . . all facts, views, arguments and data deemed to support the action requested." 47 C.F.R. § 1.401(c) (1991). Further, "[p]etitions which are moot, premature, repetitive, frivolous, or which plainly do not warrant consideration by the Commission may be denied or dismissed without prejudice to the petitioner." Id. at § 1.401(e). Only when a petition "discloses sufficient reasons in support of the action requested to justify the institution of a rulemaking" will the Commission proceed to issue a notice of proposed rulemaking. Id. at § 1.407 (emphasis added). Here, Radian has not sufficiently addressed potential interference caused by wind profile systems to other current and prospective users of the requested frequency. Moreover, Radian has failed to show that the need for 914-916 MHz exceeds that for other services in the band. Accordingly, the Commission should dismiss the Petition.

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4. See, e.g., Comments of Amtech Corporation ("Amtech") in the above-captioned proceeding.

A. Radian Has Not Provided Sufficient Data to Evaluate Spectrum Management Considerations.

The high demand for radio spectrum often compels intensive sharing and coordination among mutually exclusive users. Unfortunately, the Radian Petition does not contain technical information needed to assess the potential for interference with other users of 914-916 MHz and surrounding frequencies, or how interference is to be resolved. Hughes concurs with observations of other commenters that the Petition lacks even elementary technical parameters.[5] Radian has not proposed allowable power, limits on spurious emissions, or antenna patterns (especially with respect to horizontal emissions), among others.

As pointed out by several commenters on the Petition, Radian's proposal appears to pose a significant risk of interference to co-channel uses of 914-916 MHz and surrounding frequencies.[6] In fact, proposed wind profile radars may need substantially greater bandwidth than the 2 MHz proposed. For example, parameters contained in Radian's Petition show that, for a portable wind profiler system designed to transmit at 915 MHz, the -20 dB emission bandwidth is 40 MHz. See Memorandum from S.F. Clifford to Richard Barth re: Request for Systems Review for Stage 3 Assignment, October 22, 1991, at attachment p. 10-14.[7] Radian's assurances of no interference problems notwithstanding, Petition at 7-8, the apparent likelihood of potential

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5. See, e.g., Comments of Amtech at 5; Comments of the American Radio Relay League, Inc. ("ARRL") at 4.

6. See, e.g., Comments of Amtech at 7-11; Comments of ARRL at 4-5; Opposition of EnScan, Inc. at 3-5; Opposition of Telxon Corporation at 2-3.

7. Appendix I to the Petition.

interference, coupled with Radian's plans to locate wind profilers near areas likely to be served by AVM applications, such as airports, makes interference analysis, based on data yet to be provided, critical to this proceeding.

The Petition also contains no quantitative information about wind profiler susceptibility to co-channel interference. Radian uses the term "co-secondary" with the amateur radio service to describe the proposed allocation. Petition at 2. This seems to imply that Radian seeks a status similar to amateur radio service operators, that is, wind profile operators within the 902-928 MHz band would be bound "to not causing harmful interference to, and not receiving protection from any interference due to the operation of, industrial, scientific, and medical devices, automatic vehicle monitoring systems, or Government stations authorized in this band." 47 C.F.R. § 97.303(g)(1). Thus, the lack of sufficient technical data or proposed operating standards may also hinder Radian's ability to effectively coordinate use of 914-916 MHz for its own benefit.

B. Radian Has Not Demonstrated Sufficient Need to Operate Wind Profile Radar Systems In the 914-916 MHz Band.

In considering a petition for rulemaking to allocate a portion of the radio spectrum, the Commission should carefully consider the demonstrated public need for the proposed service, in light of projected demand for other telecommunications services in the requested frequency band. Cf. Use of Radio in Establishing a Public Air-ground Telephone System, 57 Rad.Reg.2d (P&F) 1219 (Comm'n 1985) ("Airfone"). In Airfone a petition for rulemaking was denied because the Commission found that, while a need may have existed for the proposed service, "the needs of other services competing for the same spectrum [were] more pressing and should be accorded greater priority." Id. at

1222-23. The Commission's conclusion was based on historical and projected increases in demand for the competing services, contrasted to the petitioner's failure to demonstrate any sizable demand for its service. Id.

Here, Radian has likewise failed to show that a significant demand exists or can be projected for wind profiling in the 914-916 MHz band. According to information that accompanied the Petition, the federal government, acting through the National Telecommunications and Information Administration ("NTIA"), has allocated 449 MHz for government wind profile operations. See Memorandum from Richard D. Parlow to Executive Secretary, IRAC, December 11, 1991, at 3.[8/] The National Oceanographic and Atmospheric Administration ("NOAA") currently plans to install a national network of wind profilers at 449 MHz.[9/] Presumably, private wind profile research conducted pursuant to government contract would make use of 449 MHz as well. While NOAA has requested authority to operate some wind profilers at 915 MHz, this is only for a small number of portable units intended for temporary use in research projects.[10/] Portable units used for research projects can easily be licensed under the provisions of Part 5 of the Commission's rules, and do not require a separate allocation.[11/]

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8. Appendix H to the Petition.

9. This information is based on a conversation between Richard Barth, Director, Radio Frequency Management Office, NOAA and Paul J. Fox, P.E., consultant for Hughes, of November 19, 1992.

10. Id.

11. Hughes notes Radian's claim that available frequencies below 915 MHz are unsuited to certain wind profiling operations. Petition at 6 & 7. While this may be true, it remains incumbent upon Radian to show a need for such operations, and to show that such "is more pressing and should be accorded greater priority" than other services using or projected to use the frequency in question. Airfone at 1223.

In view of the competing uses for the 902-928 MHz band, the projected evolution of IVHS technologies, and the strong public interest in those technologies, Radian has the burden of showing that wind profiling at 914-916 MHz is needed, and that such need deserves greater priority than competing needs. This is true despite Radian's characterization of its use as "co-secondary," because of the apparent potential for harmful interference to other services, discussed above. Radian has failed to meet that burden in its Petition.

Before any further action can be taken on the Petition by the Commission, Radian must provide technical data needed to assess the likelihood of interference, and the optimal means of mitigating the negative effects such interference will have on other services being provided in the public interest. Additionally, Radian must provide additional information demonstrating the need for an allocation of the 914-916 MHz band for wind profiling. Radian has indicated that it intends to respond to such questions in its reply. See Radian's Request for Extension of Time, filed November 13, 1992 at 2 ("Most of the oppositions filed raise highly technical issues which require Radian to complete further engineering studies.") Because the promised information was not contained in the original proceeding, however, interested parties must have additional opportunity to evaluate the data and comment. Accordingly, the Petition should be denied without prejudice, allowing Radian to refile with complete technical data, or, in the alternative, the Commission should set another round of comments and replies after Radian files its reply.

III. THE PETITION SHOULD BE CONSIDERED IN CONJUNCTION WITH THE TELETRAC PROCEEDING.

As discussed above, the Commission has presently before it a Petition by Teletrac for a rulemaking concerning AVM systems. Some commenters have proposed that new rules be adopted opening the entire 902-928 MHz band for AVM use. See, e.g., Opposition of Amtech to Teletrac Petition, July 23, 1992, at 46; Opposition of Pinpoint Communications, Inc. to Teletrac Petition, July 23, 1992, at 26. The Commission has taken an initial step in this direction by requesting authorization from IRAC for AVM operations in the 912-918 MHz band.

Because both the Teletrac and Radian rulemaking proceedings concern allocation and use of the same frequency bands, they should be considered together by the Commission. Accordingly, Hughes proposes that, even if Radian provides the data needed to conduct appropriate spectrum management analysis, as described above, the Commission not take action with regard to the Radian Petition until completion of the Teletrac proceeding, or consider the Radian Petition in conjunction with the Teletrac Petition and related pleadings by interested parties.

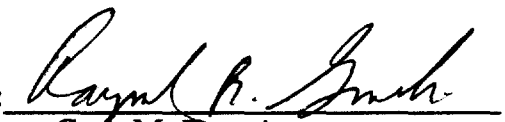
CONCLUSION

Radian has failed to provide the data needed to conduct effective interference analysis of the 914-916 MHz band, in view of the current and prospective competing uses of that band and neighboring frequencies. Its Petition does not, therefore, warrant consideration by the Commission. Even if Radian successfully addresses the need for additional technical data in its reply, interested parties must have additional time to fully evaluate those data, and to comment thereon. The Commission

should, at least, set an additional round of comments and replies after Radian's reply is filed. Finally, because the Commission is also considering proposed changes to rules governing AVM systems, which may involve a competing use of that portion of the spectrum sought by Radian to be allocated for wind profile system use, the Commission should consider the Radian Petition after, or in conjunction with, its consideration of the Teletrac Petition.

Respectfully submitted,

HUGHES AIRCRAFT COMPANY
GROUND SYSTEMS GROUP

By: 

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December 17, 1992

CERTIFICATE OF SERVICE

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